1st Read.

W

BS X 1/6

CITY OF ABERDEEN.

Report

BY THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR

1903.

30 APR 65

STATISTICAL SOCIETY
12 SEP 1904

CITY OF ABERDEEN.

Report

BY THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR

1903.

30 APR 65

CITY OF ABERDEEN.

REPORT BY THE MEDICAL OFFICER OF HEALTH

For the Year 1903.

POPULATION.

(Table I.)

Estimated from the census of 1901 and the previous census of 1891, the population of the city, at the middle of 1903, was 160,780, whereof 64,357 persons were in the St. Nicholas division, including Torry; and the remainder—96,423—were in the St. Machar division, including Old Aberdeen and Woodside. The population of the city in the preceding year was similarly estimated at 157,505. The increase according to these estimates amounts, therefore, to 3,275. In previous years I have found it more reliable to calculate the increase of population from the voters' roll, and on this basis I estimate the population of Aberdeen to have been 162,472 at the middle of 1903, showing that the real increase is probably greater than that estimated by the Registrar-General. The following rates are, however, calculated on the population given by the Registrar-General.

BIRTH-RATE.

(Table II.)

The continuous gradual fall, in recent years, of the birth-rate was interrupted last year by a slight increase, the rate having risen to 31·0 per 1,000 from 30·5 in the preceding year. The increase was equally apparent in both divisions of the city. It is probably attributable to a nearly corresponding increase in the marriage-rate during the past two years as compared with the preceding two years.

The birth-rate in the St. Nicholas and Torry division of the city continues to be considerably higher than the rate in the St. Machar division, viz., 35·9, as compared with 27·7. The former, after rising somewhat in the intervening years, is now only slightly higher than it was fifteen to twenty years ago, while the latter has steadily declined and is considerably under its height twenty years ago. It has, however, to be noted that the marriage-rate among the working classes, which largely compose the population of St. Nicholas, has, in recent years, apparently increased more than the rate among the upper classes, which bulk more in St. Machar.

MARRIAGE-RATE.

(Table II.)

If the marriage-rate be, as it probably is, one of the most reliable indexes of the material prosperity of a community, then the rate in the whole city for last year, which was 9·1 per

TABLE I.—POPULATION OF ABERDEEN IN 1903.

	Estimated Population. — 1903.	PER-CENTAGE OF POPULATION AT EACH AGE-PERIOD, Calculated from Census, 1891.					
		Under 1 year.	0–5. years.	5—15 years.	15—25 years.	25—60 years.	Above 60 years.
ST. NICHOLAS AND TORRY .	64,357	2·95	13·37	23·54	20·10	35·76	7·23
ST. MACHAR . . . . . (Incl. Woodside and Old Aberdeen).	96,423	2·46	11·46	22·23	21·65	35·86	8·80
Whole City . . .	160,780	2·67	12·26	22·79	21·00	35·81	8·14

TABLE II.—BIRTH, DEATH, AND MARRIAGE RATES IN ABERDEEN,

Per 1,000 of Population.

Year.	Births.			Deaths.			Marriages.		
	St. Nicholas.	St. Machar.	City.	St. Nicholas.	St. Machar.	City.	St. Nicholas.	St. Machar.	City.
1903	35·9	27·7	31·0	21·1	14·4	17·0	14·2	5·6	9·1
1902	35·4	27·2	30·5	22·1	15·1	17·9	14·1	5·7	9·1
1901	37·0	27·0	31·0	21·6	16·0	18·2	13·3	5·9	8·9
1900	37·8	27·9	31·9	23·7	15·9	19·0	14·0	5·6	9·0
1899	38·0	27·7	31·3	22·6	15·5	18·4	13·9	6·7	9·6
1898	38·2	27·9	32·1	23·5	15·0	18·5	14·5	5·9	9·4
Mean of 1898-1902	37·3	27·5	31·5	22·7	15·5	18·4	14·0	6·0	9·2
1897	37·6	28·0	31·9	21·8	14·3	17·4	13·8	6·0	9·2
1896	36·6	28·6	31·9	22·1	14·7	17·8	13·9	6·3	9·5
1895	38·2	27·7	32·1	25·5	17·2	20·7	13·4	5·5	8·8
1894	35·2	28·1	31·1	22·1	15·6	18·4	12·6	5·9	8·8
1893	36·0	29·6	32·4	21·3	16·1	18·3	11·4	5·4	8·0
Mean of 1893-97	36·7	28·4	31·9	22·6	15·6	18·5	13·0	5·8	8·9
Mean of 1886-95	35·4	29·5	32·0	22·7	17·4	20·0	11·1	5·7	8·1
1876-85	...	...	34·3	...	...	20·4	...	...	7·8
1866-75	...	...	36·2	...	...	23·0	...	...	8·2

1000, and is precisely the same as in the preceding year and very slightly above the rate in 1900 and 1901, shows that the prosperity of the city has remained practically unchanged during the past four years. But this gauge of prosperity is probably more a measure of the sufficiency and steadiness of employment among the working classes than of the amount of the profits earned by the employers, who in many trades have been complaining for some time of diminished returns, which are not necessarily accompanied by diminished employment or even, for a time, by greatly reduced wages to workmen. The average marriage-rate (9·0) in the last four years was distinctly lower than the average rate (9·4) for the preceding four years, which was in turn considerably above the rate before 1896. Before 1896, the rate was almost constantly and considerably under even the lowest rate in any year since 1896.

The greatly higher rate in the St. Nicholas division is, as has been explained in previous reports, due in part to many marriages of persons from all over the city being celebrated in one of the various public halls which are principally within this division. All civil marriages also take place in this division as the law courts are there.

DEATH-RATE.

(Tables II., III., IV., V., and VI.)

The deaths during the year amounted to 2,741, giving a rate of 17·0 per 1,000. This is absolutely the lowest rate ever reached in Aberdeen since registration began nearly half a century ago. The rate most nearly approaching this was that of 17·4 in 1897, and the next was 17·8 in 1896. This is a gratifyingly low rate for an industrial town of considerable population. It is the more gratifying in that it was attained in a year which was not exceptionally free from zymotic diseases. Chiefly owing to an epidemic of measles, the number of zymotic cases was only slightly under the average (see Table VII.). It helps to make plain the extent of the fall in the death-rate in Aberdeen within the last thirty years when it is stated that, if the death-rate had last year been at the same level as it was thirty years ago, there would have been 3,698 deaths in place of 2,741. This represents the almost incredibly large saving of 957 lives in a single year, and shows how very greatly the health of the community has improved within a single generation. Regard being had to its size and its industrial character, Aberdeen may at present claim to be one of the healthiest of the large towns in Britain, if the death-rate may be taken as an index; and it has not yet exhausted all the means of improving its sanitation. There are still some houses, though not many, which are scarcely fit for habitation, there is one small area at Footdee where the sanitary arrangements are far from satisfactory, there is a decided lack of small open spaces for the recreation of children, there are no public baths for the working classes at convenient centres, there is as yet no public slaughter-house and no refuse destructor, the air is still laden with smoke which the furnaces ought to consume, the water-supply is not taken from an unimpeachable source, and the problem of the reduction of the high infant mortality is by no means entirely solved. We may not be suffering much from some of these defects, but it can scarcely be disputed that it is desirable that they all were remedied as soon as may be practicable.

Analysis of the Death-Rate.

(a) Mortality in Relation to Age (Tables III., IV., and V.).—It is satisfactory to find that the death-rate among infants in the first year of age, which fell somewhat suddenly to 156

TABLE III.—DEATHS AT VARIOUS AGE-PERIODS FROM VARIOUS CAUSES.

Year 1903.

AGE.	ALL CAUSES.	Zymotic Diseases.				Tubercular Diseases.		Diseases of					Malignant Diseases.	Developmental Diseases (ex. old age)	Accident and Violence.	Debility, Atrophy, Inanition.		Miscellaneous.
		Miasmatic.	Diarrhoeal.	Venereal.	Septic.	Phthisis.	Other Tubercular.	Respiratory System.	Circulatory System.	Urinary System.	Nervous System.	Digestive System.				Under age of 1 year.	Above age of 60 years.	
WHOLE CITY.																		
Under 1 year,	675	72	80	10	5	2	21	125	8	3	75	45	0	153	9	49	...	18
Under 5 years,	980	174	100	11	5	10	59	195	9	5	96	59	0	153	20	49	...	35
5—15 ,,	103	12	1	0	2	16	19	11	8	3	7	10	1	...	8	...	...	5
15–25 ,,	157	7	0	1	4	59	17	10	14	3	5	14	2	...	9	...	...	12
25—60 ,,	681	5	4	2	14	138	19	80	118	30	73	52	62	...	30	...	...	54
60 + ,,	820	18	12	0	8	7	0	177	200	33	118	42	68	...	17	...	95	25
ALL AGES,	2741	216	117	14	33	230	114	473	349	74	299	177	133	153	84	...	...	131
ST. NICHOLAS (including Torry).																		
Under 1 year,	393	47	50	8	2	2	12	75	3	2	41	21	0	85	6	29	...	10
Under 5 years,	582	117	60	9	2	6	29	118	3	3	56	26	0	85	16	29	...	23
5—15 ,,	57	7	0	0	0	9	11	5	4	2	3	6	1	...	6	...	...	3
15—25 ,,	91	5	0	1	3	28	11	10	8	3	1	7	2	...	8	...	...	4
25—60 ,,	332	2	1	2	10	66	12	41	57	21	18	28	30	...	16	...	...	28
60 + ,,	295	7	4	0	5	0	0	72	77	16	34	15	27	...	6	...	24	8
ALL AGES,	1357	138	65	12	20	109	63	246	149	45	112	82	60	85	52	...	...	66
ST. MACHAR (including Old Aberdeen and Woodside).																		
Under 1 year,	282	25	30	2	3	0	9	50	5	1	34	24	0	68	3	20	...	8
Under 5 years,	398	57	40	2	3	4	30	77	6	2	40	33	0	68	4	20	...	12
5—15 ,,	46	5	1	0	2	7	8	6	4	1	4	4	0	..	2	...	...	2
15—25 ,,	66	2	0	0	1	31	6	0	6	0	4	7	0	...	1	...	...	8
25—60 ,,	349	3	3	0	4	72	7	39	61	9	55	24	32	...	14	...	...	26
60 + ,,	525	11	8	0	3	7	0	105	123	17	84	27	41	...	11	...	71	17
ALL AGES,	1384	78	52	2	13	121	51	227	200	29	187	95	73	68	32	...	...	65

Table IV.—Death Rates at Various Age-Periods from Various Causes (per 100,000 of population at each age.)—*Year* 1903.

Age.	All Causes.	Zymotic Diseases.				Tubercular Diseases.		Diseases of					Malignant Diseases.	Developmental Diseases (ex. old age)	Accident and Violence.	Debility, Atrophy, Inanition.		Miscellaneous.
		Miasmatic.	Diarrhoeal.	Venereal.	Septic.	Phthisis.	Other Tubercular.	Respiratory System.	Circulatory System.	Urinary System.	Nervous System.	Digestive System.				Under age of 1 year.	Above age of 60 years.	
Whole City.																		
Under 1 year,	15723	1677	1863	233	116	47	489	2911	186	70	1747	1048	0	3563	210	1141	...	419
Under 5 years,	4972	883	507	56	25	51	299	989	46	25	487	299	0	776	101	...	...	178
5—15 ,,	281	33	3	0	5	44	52	30	22	8	19	27	3	0	22	...	...	14
15—25 ,,	465	21	0	3	12	175	50	30	41	9	15	41	6	0	27	...	...	36
25—60 ,,	1183	9	7	3	24	240	33	139	205	52	127	90	108	0	52	...	...	94
60+ ,,	6266	138	92	0	61	53	0	1352	1528	252	902	321	520	0	130	...	726	191
All Ages, .	1705	134	73	9	21	143	71	294	217	46	186	110	83	95	52	...	...	81
St. Nicholas (including Torry).																		
Under 1 year,	20554	2458	2615	418	105	105	628	3923	157	105	2144	1098	0	4446	314	1517	...	523
Under 5 years,	6764	1360	697	105	23	70	337	1371	35	35	651	302	0	988	186	...	..	267
5—15 ,,	376	46	0	0	0	59	73	33	26	13	20	40	7	0	40	...	...	20
15—25 ,,	703	39	0	8	23	216	85	77	62	23	8	54	15	0	62	...	...	31
25—60 ,,	1443	9	4	9	43	287	52	178	248	91	78	122	130	0	70	...	...	122
60+ ,,	6340	150	86	0	107	0	0	1547	1655	344	731	322	580	0	129	...	516	172
All Ages, .	2109	214	101	19	31	169	98	382	232	70	174	127	93	132	81	...	...	103
St. Machar (including Old Aberdeen and Woodside).																		
Under 1 year,	11844	1050	1260	84	126	0	378	2100	210	42	1428	1008	0	2856	126	840	...	336
Under 5 years,	3602	516	362	18	27	36	271	697	54	18	362	299	0	615	36	...	...	109
5—15 ,,	215	23	5	0	9	33	37	28	19	5	19	19	0	0	9	...	...	9
15—25 ,,	316	10	0	0	5	148	29	0	29	0	19	34	0	0	5	...	...	38
25—60 ,,	1009	9	9	0	12	208	20	113	176	26	159	69	93	0	40	...	...	75
60+ ,,	6187	130	94	0	35	82	0	1237	1449	200	990	318	483	0	130	...	836	200
All Ages, .	1435	81	54	2	13	125	53	235	207	30	194	99	76	71	33	...	...	67

TABLE V.—MORTALITY FROM ALL CAUSES AT VARIOUS AGE-PERIODS

(per 1,000 of population at each age.)

Year.	AGE PERIOD.						All ages.
	Under 1 year.	0—5 years. (Infant Period.)	5—15 years. (School Period.)	15—25 years. (Adolescent Period.)	25—60 years. (Mature Period.)	60 years and upwards. (Post-mature Period.)	
1903 . .	**157·2**	**49·7**	**2·8**	**4·6**	**11·8**	**62·7**	**17·0**
1902 . .	156·5	48·4	2·8	5·2	12·8	69·4	17·9
1901 . .	176·5	52·2	3·4	5·1	12·4	68·3	18·2
1900 . .	177·8	54·4	3·0	4·9	14·0	68·9	19·0
1899 . .	170·0	54·8	3·0	5·6	12·5	64·6	18·4
1898 . .	189·5	60·6	3·6	4·6	11·6	61·7	18·5
Mean of 1898-1902	**174·1**	**54·1**	**3·2**	**5·1**	**12·7**	**66·6**	**18·4**
1897 . .	168·6	51·0	3·2	5·3	11·4	62·6	17·4
1896 . .	153·4	51·0	4·5	5·0	12·6	60·8	17·8
1895 . .	201·4	62·4	4·5	5·9	12·5	67·2	20·7
1894 . .	173·4	51·9	4·5	6·2	11·4	59·7	18·4
1893 . .	151·2	42·4	4·3	5·8	13·3	69·3	18·3
Mean of 1893-97	**169·6**	**51·7**	**4·2**	**5·6**	**12·2**	**63·9**	**18·5**
Mean of 1886-95	**168·5**	**53·8**	**4·6**	**6·3**	**12·8**	**68·1**	**20·0**
1876-85 . .	**144·9**	**52·0**	**5·7**	**6·9**	**13·5**	**69·9**	**20·4**
1866-75 . .	**146·2**	**59·4**	**7·4**	**6·0**	**18·7**	**72·3**	**23·0**

per 1,000 in the preceding year from a previous average, for some years, of between 175 to 180, remained during the past year at practically the same figure as in the preceding year. It is, however, still above the rate which prevailed thirty to forty years ago, which averaged about 145. It ought at least to be possible to return to this lower rate, and, indeed, there is no reason why, in the improved sanitation of recent years and a wider dissemination of knowledge as to the proper methods of rearing, and especially of feeding, infants, the rate should not fall to 120 or even 100. At 100, it would still mean that one infant in every ten born did not live to be a year old. Last year about one infant in every six failed to reach this age, the city being taken as a whole. If a comparison be made between the St. Nicholas division and the St. Machar division, as may be done by reference to Table IV., it will be found that the rate of mortality among infants was nearly twice as great in the former division as in the latter, which shows that it is chiefly among the poorer classes that the large waste of infant life occurs. I had hoped, as mentioned in my last annual report, to be able in this report to give some account of an investigation into the precise incidence and probable causation of the infant mortality which was being undertaken under my guidance by Dr. Taylor, Resident Physician at the City Hospital, but his unexpected resignation owing to a favourable opportunity of entering private practice, has delayed the completion of the investigation. Meanwhile we shall follow with much interest the experiments which are being made, or are about to be made, in St. Helens, Liverpool, Glasgow, Leith, and Dundee, in establishing municipal milk depots for the supply of what may be called sterilised and humanised milk for the feeding of bottle-fed infants. The results have so far been encouraging, though fears may be entertained as to the possible effects of sterilisation in destroying certain beneficial qualities of the natural milk. The supreme defect in the feeding of bottle-fed infants is the use of inadequately cleaned bottles, and especially of dirty tubes and teats. If mothers would occasionally slit open the tube of a feeding bottle, it would be a revelation and most needful lesson to observe the foul-smelling, putrid coating of clotted milk which lines the interior of the tube if it is not thoroughly brushed out before every fresh supply of milk. Such a coating teems with countless germs, which grossly pollute the milk and make it a sure source of the stomach and bowel ailments which are so frequent, and not seldom so deadly, in bottle-fed infants. Bottles with teats only, and without tubes, should be exclusively used, and the teat should be turned inside out and thoroughly cleaned with every fresh filling of the bottle. If only these precautions were observed by every mother and nurse, it is not too much to say that there would be forthwith a striking diminution in the infant mortality. It is a punishable offence for a dairyman to neglect the proper cleansing of any of his milk utensils. I see no reason why it should not also be a punishable offence for a mother or nurse, after due warning, to persist in feeding an infant from an insufficiently cleaned bottle, if only in this way a proper conscience in this important matter can be created. There are other defects or mistakes in infant feeding, but it may be proper to reserve these for my next annual report or for a special report, after the completion of the inquiry to which I have already referred. It is right to say that the female sanitary inspector is rendering valuable assistance in giving instruction in infant feeding as occasion offers.

The mortality rates at the other periods of life—the "school," the "adolescent," the "mature," and the "post-mature"—during the past year were all under the average. The mortality rate at the "school" age-period was the same as in the preceding year, but it is only a little above one-third of the rate which prevailed thirty years ago. The mortality at the "adolescent" age-period is the lowest on record, if the rate in 1898 be excepted, which was the same as the rate last year. The rate at the "mature" age-period, though not the lowest recorded, is only slightly above the lowest rate; and the same observation is true of the rate at the "post-mature" period. In comparing the two divisions of the city in respect of these age-period rates, as has already been done for the infant mortality, and if allowance be made for the effect of the hospitals being almost entirely situated within the St. Nicholas division, it is found that while there is a difference at each age-period in favour of the St. Machar division, the difference is greatest at the "adolescent" period. At this period the mortality rate last year was twice as high in the St. Nicholas as in the St. Machar division, thus resembling the mortality rate at the "infant" period. This striking difference is to be observed without much variation year after year, and is largely due to a higher death-rate from phthisis at this age-period among the working classes than among the upper classes. In a future report I hope to deal more fully with this difference and with its fundamental causes.

(b) Mortality in Relation to Cause.—Tables III. and IV. give details of this for the past year, and Table VI. affords material for a comparison with previous years. The chief causes of death were, in the order of their importance, diseases of the respiratory system, with 473 deaths, or 17 per cent. of the total deaths; diseases of the circulatory system, with 349 deaths, and tuberculous diseases, with 344 deaths, giving for each about 13 per cent.; diseases of the nervous system, with 299 deaths, or 11 per cent.; and miasmatic or the ordinary infectious diseases, with 216 deaths, or 8 per cent. Then followed next in order diseases of the digestive system (177 deaths), developmental diseases (153 deaths), malignant diseases (133 deaths), accidents and violence (84 deaths), and diseases of the urinary system (74 deaths). These diseases were, as usual, very unequally distributed over the various periods of life. The mortality from respiratory diseases was chiefly among the very young and the old; that from diseases of the circulatory system was mainly among the old; that from tuberculous diseases was, in the case of phthisis, most prevalent in adolescence and middle life, and, in respect of other forms of tuberculosis, most prevalent in childhood; that from diseases of the nervous system, chiefly at the extremes of life; and that from miasmatic diseases, mainly in early childhood.

The variations, since the year 1866, in the death-rate from selected causes can be readily followed in Table VI.

The total death-rate from the more common *miasmatic* diseases was less than that of the previous year, and was considerably under the average. The rates from scarlet fever, diphtheria, and typhoid fever were each among the lowest recorded. Only the death-rate from measles was high.

The death-rate from *phthisis* has, for some unknown reason, not shown during the past three years the almost unbroken decline which has characterised it for nearly thirty years. In 1901 the rate was 132 per 100,000 of population—the lowest recorded rate, but in 1902 it rose slightly to 136, and last year it showed a still further increase to 143. But all three rates are lower than any previously recorded rates. The rate for last year was almost exactly one-half of the average rate for the decade 1866-75. If the rate then existing had continued until now, the deaths from phthisis would last year in Aberdeen have numbered about 460 in place of 230. As the deaths from this disease occur, for the most part, at those age-periods which are usually marked by the greatest vitality and vigour, this yearly saving of so many lives is a valuable addition to the vital assets of the community.

The death-rate last year from another lung disease—*bronchitis*—was the lowest on record, though only slightly lower than in the preceding year. The death-rate from this disease has, like that from phthisis, fallen to nearly one-half of the rate formerly experienced; but the fall has taken place within twenty years. It was a decade later in starting than the fall in the phthisis rate.

In striking contrast with these two diseases is *pneumonia*, the death-rate from which has nearly doubled within the past twenty to thirty years. It is satisfactory, however, that its rapid and almost continuous rise met with a check last year, the rate being only 114 per 100,000 of population as against 134 in 1902. A large number of the deaths embraced in the pneumonic rate are due to broncho-pneumonia in young children.

The death-rate from *diseases of the circulatory system*—chiefly heart diseases—has, like the death-rate from pneumonia, grown considerably within the last quarter of a century, but, also like that rate, it happily suffered some decline last year, the rate being 213 per 100,000 of population, as compared with 225 in the pervious year. The greater part of the rise in this rate has taken place within the last eight to ten years. Increasing accuracy in diagnosis can only account for a small part of the rise, especially within so short a period. It is possible that the increased prevalence of influenza in recent years may have favoured the occurrence of heart disease, or hastened its fatal termination. This, however, can scarcely be true of pneumonia and influenza, for the growth of the death-rate from pneumonia was more rapid before the invasion of influenza than subsequently. No doubt, subtle conditions such as have determined the unusual prevalence of influenza in recent times may materially affect the prevalence of pneumonia, which in certain of its forms is of a zymotic character.

It is gratifying to observe that the death-rate from *cancer* and other similarly malignant diseases—which had, like the pneumonic death-rate, almost doubled in thirty years—has been receding during the past two years, the rates for 1902 and 1903 being 88 and 81 respectively, as compared with 95 in 1901. The rate for last year is the lowest rate within the past decade. It is too soon to say that this recession indicates a definite staying of the hitherto continuous growth of the cancer mortality. But, such as it is, it is welcome.

The death-rates from *diarrhoeal* diseases and from diseases of the *digestive* system showed each, but more especially the former, a considerable rise in the past year. The rise in the diarrhoeal rate was equally manifest at the advanced as well as the earlier ages; but in the digestive rate it was almost entirely confined to the infant age-period. The alteration, in 1902, of the classification of these two groups of diseases by the transference to the diarrhoeal group of several gastro-enteric diseases formerly embraced in the digestive group accounts for the apparently sudden rise in the former group in 1902, as shown in Table VI., and the equally sudden fall in the latter group in the same year. If the combined rate of the two groups is taken, it will be found that there has been no very definite change within the last thirty years.

TABLE VI.—DEATHS FROM SELECTED CAUSES

(per 100,000 of population). — *Years* 1866-1903.

Year,	Miasmatic Diseases.														
	Smallpox.	Scarlet Fever.	Diphtheria.	Measles.	Whooping Cough.	Influenza.	Typhus Fever.	Typhoid Fever.	Diarrhoea and Dysentery. †	Phthisis.	Cancer and other Malignant Diseases.	Bronchitis.	Pneumonia.	Diseases of Circulatory System.	Diseases of Digestive System. †
1903, . . .	0	8	8	73	27	14	0	2	72	143	81	142	114	213	110
1902, . . .	0	7	13	11	82	29	0	2	53	136	88	144	134	225	100
1901, . . .	0·6	6	10	41	10	27	0	10	18	132	95	162	124	220	177
1900, . . .	0	7	20	37	60	54	0	7	17	166	87	170	123	211	173
1899, . . .	0	11	19	90	34	33	0	15	23	152	98	159	111	179	156
1898, . . .	0	26	25	15	73	23	1	10	22	156	84	173	112	190	188
Average 1898-1902,	0·1	11	17	39	52	33	0·2	9	27	148	90	162	121	205	159
1897, . . .	0	21	10	17	15	25	0	5	27	152	89	183	106	183	154
1896, . . .	0	44	15	29	86	13	0	4	42	174	88	167	85	162	132
1895, . . .	0	22	9	133	70	61	0	14	52	188	88	226	96	176	151
1894, . . .	1	22	28	52	78	8	0	8	34	179	79	207	113	149	140
1893, . . .	1	12	29	20	5	52	1	9	57	199	83	178	113	149	153
Average 1893-97,	0·4	24	18	50	51	32	0·1	8	42	178	85	192	103	164	146
,, 1886-95,	0·6	18	16	73	60	34	1	12	47	185	76	217	105	169	152
,, 1876-85,	0·4	24	22	32	67	1	13	21	58	215	65	268	77	152	131
,, 1866-75,	2·6	72	23	53	67	6	37	42	75	282	59	267	67	133	165

† Classification altered in 1902.

MORBIDITY AND MORTALITY FROM ZYMOTICS.

(Table VII.)

Table VII. gives the statistics of the morbidity and mortality from the commoner zymotics during the past year, and in each of the preceding ten years. The averages for this decade and for the previous decade are also given. The number of cases or sicknesses is stated for each disease, with the number of deaths, as also the case-mortality or percentage of deaths to sicknesses.

It is necessary to keep in mind that, as mentioned in the last annual report, the compulsory notification of measles and whooping cough was discontinued early in February of the year under review. As was explained then, a fairly successful effort has been since made to obtain information of cases of these diseases through the school officers and by voluntary intimation. We believe we have thus been informed of the bulk of the cases of these two diseases, but there cannot fail to have been a distinctly larger proportion of unreported cases than in previous years. The figures for these two diseases, except in respect of deaths, are not, therefore, strictly comparable with those of previous years.

The statistics show that, during the past year, the total known cases of the seven zymotics embraced in the table were under the average for the preceding decade, being 4,426, as against 5,092, and were considerably below the total for the year 1902. By far the most prevalent zymotic was measles, which accounted for 3,246 cases, or about three-fourths of all the zymotic cases, and it was followed at a long distance by whooping cough with 507 cases, scarlet fever with 465 cases, diphtheria with 182 cases, and typhoid fever with the remarkably small number of 26 cases. There were, as in the preceding year, no cases of small-pox or typhus fever.

As compared with the preceding ten years, measles and diphtheria were each distinctly above the average in prevalence, while whooping cough, scarlet fever, typhoid, typhus, and small-pox were each under the average. In the preceding year, whooping cough and diphtheria were the zymotics with a more than average prevalence.

Small-pox.—No cases of small-pox occurred in the city during 1903, though, in the spring of the current year, three cases were met with, the details and circumstances of which have been given in the monthly reports. It is sufficient here to recall that the infection in the first two cases—a trawler and his wife—was got while attending the funeral of a relative in North Shields who had died of small-pox, and the third case, a neighbour of the first cases, was infected from these. The disease was, fortunately, confined to the three cases, all of which were promptly isolated in hospital. All the known contacts were removed to reception wards and re-vaccinated, but allowed to pursue their usual avocations during the day. The patients made a good recovery. The most impressive fact in the outbreak was the apparent power of re-vaccination in preventing the development of the disease in persons who had been in intimate contact with the patients for three or four days after the symptoms of the disease had appeared. This was particularly exemplified in the crew of seven or eight who occupied the same cabin of a trawler along with one of the crew who sickened of small-pox three to four days before the vessel was able to return to port.

Measles.—I took occasion to remark in the last annual report that measles, except for the usual seasonal remissions, had been practically continuously epidemic for four years. The years must now be extended to five, for notwithstanding that many cases, because of the

TABLE VII.—MORBIDITY AND MORTALITY FROM ZYMOTICS (MIASMATICS)

DURING EACH YEAR FROM 1893 TO 1903, INCLUSIVE.

DISEASE.		1903	1902	1901	1900	1899	1898	1897	1896	1895	1894	1893	ANNUAL AVERAGE.	
													1893 to 1902.	1883 to 1892.
Small Pox,	No. of Sicknesses,	0	0	7	0	1	0	0	0	1	4	3	1·6	5·4
	No. of Deaths, ...	0	0	1	0	0	0	0	0	0	1	1	0·3	0·3
	Percent. of Deaths to Sicknesses,...	0	*0*	*14·7*	*0*	*0*	*0*	*0*	*0*	*0*	*25·0*	*33·3*	18·7	5·5
Measles, ...	No. of Sicknesses,	3246	1999	2796	3061	6527	734	1884	1917	2874	2043	514	2435	1618
	No. of Deaths, ...	118	18	63	56	134	21	23	30	172	67	26	61	67
	Percent. of Deaths to Sicknesses,..	3·6	*0·9*	*2·3*	*1·8*	*2·1*	*2·9*	*1·2*	*1·6*	*5·9*	*3·2*	*5·1*	2·5	4·2
Scarlet Fever, ...	No. of Sicknesses,	465	321	385	371	342	1078	1053	1676	596	525	411	666	531
	No. of Deaths, ..	13	11	9	10	16	38	29	62	31	26	19	25	17
	Percent. of Deaths to Sicknesses,...	2·8	*3·4*	*2·3*	*2·7*	*4·7*	*3·5*	*2·8*	*3·7*	*5·2*	*4·9*	*4·6*	3·7	3·2
Whooping Cough, ...	No. of Sicknesses,	507	3645	591	2471	1377	2968	366	1886	1676	2164	286	1743	760
	No. of Deaths, ...	43	129	16	90	50	106	21	128	95	102	6	74	68
	Percent. of Deaths to Sicknesses,	8·5	*3·5*	*2·7*	*3·6*	*3·6*	*3·6*	*5·7*	*6·8*	*5·7*	*4·7*	*2·1*	4·2	8·9
Diphtheria,	No. of Sicknesses,	182	180	166	128	153	209	93	108	69	113	93	131	50
	No. of Deaths, ...	13	20	14	30	29	37	14	26	12	37	28	25	19
	Percent. of Deaths to Sicknesses,...	7·1	*11·1*	*8·4*	*23·4*	*18·9*	*17·7*	*15·1*	*24·0*	*17·4*	*32·7*	*30·1*	19·0	38·0
Typhoid Fever, ...	No. of Sicknesses,	26	46	163	109	138	180	58	78	105	74	87	104	99
	No. of Deaths, ...	4	3	15	10	22	14	7	5	18	11	10	12	15
	Percent. of Deaths to Sicknesses,...	15·4	*6·5*	*9·2*	*9·2*	*15·9*	*7·8*	*12·1*	*6·5*	*17·1*	*14·9*	*11·5*	11·5	15·1
Typhus Fever, ...	No. of Sicknesses,	0	0	0	0	5	5	0	0	0	1	7	1·8	20·8
	No. of Deaths, ...	0	0	0	0	0	2	0	0	0	0	1	0·3	3·4
	Percent. of Deaths to Sicknesses,..	0	*0*	*0*	*0*	*0*	*40·0*	*0*	*0*	*0*	*0*	*14·3*	16·7	16·3
Totals, ...	No. of Sicknesses,	4426	6191	4108	6140	8543	5174	3454	5665	5321	4924	1401	5092	3085
	No. of Deaths, ...	191	181	118	196	251	218	94	251	328	244	91	197	188
	Percent. of Deaths to Sicknesses,...	4·3	*2·9*	*2·9*	*3·2*	*2·1*	*4·2*	*2·7*	*4·4*	*6·2*	*4·1*	*6·5*	3·9	6·1

absence of compulsion in notification, must have failed to come within the cognisance of the Public Health Department, the number for last year was even greater than in any of preceding four years, except 1899. During the five years nearly 18,000 cases have been notified, and, allowing for leakage in notification, it would be safe to say that not fewer than 20,000 cases have actually occurred. Even without such an allowance, the number of notified cases represents a great increase in prevalence as compared with any preceding quinquennium since the inauguration of notification. During the past year 118 deaths from measles were registered. This gives a mortality of 3·6 per cent. in relation to the reported sicknesses. This is a high mortality. In the preceding year it was only 0·9 per cent. The excessive height is, no doubt, in part apparent only, being in some measure due to the incomplete notification of cases. There is distinct reason for believing that, as in the preceding year, a considerable number of cases of German measles were reported as cases of true measles.

A complete and interesting analysis of all the cases of measles notified from the commencement of notification in 1881 up to the beginning of last year has been undertaken, at my suggestion, by Dr. George N. Wilson, and will be published soon. It follows the lines of the corresponding analysis carried out two years ago by the late Dr. James S. Laing.

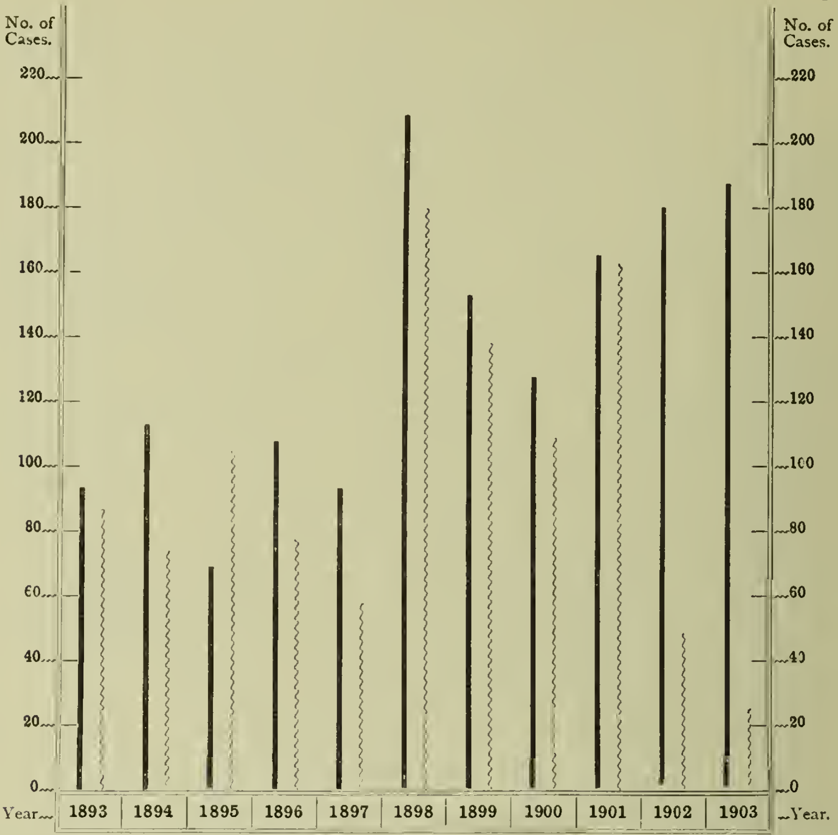
Whooping Cough, which had been unusually prevalent in the preceding year, assumed comparatively small proportions during the past year, even when allowance is made for the stoppage of compulsion in notification. The case-mortality was, however, high, and amounted to as much as 8·5 per cent., or more than twice the mortality rate in any of the preceding five years. But this is probably to be in part, if not in whole, explained as due to the rate being calculated on an incomplete notification of sicknesses.

Scarlet Fever.—During last year, as in the preceding five years, the incidence of scarlet fever was low and considerably under the average. This may be the result of the exceptionally great prevalence of the disease during the three years immediately previous to the past quinquennium, and it is not unlikely that we are on the verge of a return to years of high prevalence. The case-mortality was 2·8 per cent., as against an average of 3·7 in the preceding decade. During the decade the case-mortality has, roughly, declined from about 5 per cent. to under 3 per cent.

Diphtheria produced almost exactly the same number of cases as in the preceding year, but the number was somewhat above the average for the preceding ten years, 1893-1902, and greatly above the average—more than three times the average—for the ten years, 1883-1892. It is gratifying, however, to note that, owing in considerable measure to the efficacy of the antitoxin treatment, the case-mortality last year was only 7·1 per cent., as contrasted with 19·0 per cent. for the preceding ten years, 1893-1902, and 38·0 per cent. for 1883-1892. In spite, therefore, of the considerable increase of cases or sicknesses in recent years, the actual number of deaths from diphtheria is now considerably lower than it formerly was.

Several of the cases notified from the west end of the city were associated with the prevalence of mild sore-throat in at least one of the large elementary schools belonging to the School Board. Careful inquiry in some instances as to a possible source in a suspicious milk supply led, however, to no definite results. The disease seems to have spread almost entirely by personal contact.

Typhoid Fever has undergone a remarkable decline during the past two years, and especially in last year. In 1898, 180 cases were notified, and in each of the succeeding four



Showing number of cases of Diphtheria and Typhoid Fever notified in each year since 1893.

Diphtheria = ▮ *Typhoid* = ⌇

years the number did not fall below 100; but during the past two years—1902 and 1903—the numbers were 46 and 26, respectively. It is very difficult to account satisfactorily for this great decline. During these two years there was no series of cases originating in a contaminated milk supply, whereas more than one such series had been observed in some of the preceding years. It is possible that the city is now beginning to reap the advantages of the increasing attention which has been paid in recent years to the water-supply and general sanitation of dairy farms by the public health officers of the districts within which the farms are situated. If so, we may look forward to the decline in typhoid being permanent, except for an occasional outbreak due to accidentally contaminated milk. This decrease in typhoid, if it continues, will be a great gain to the health of the community, as few infectious diseases are attended by so prolonged and exhausting an illness and by so high a case-mortality. But it is also gratifying to note that the case mortality has declined considerably during the past five or six years, though it rose somewhat last year, when it was 15·4 per cent.

It is of interest to repeat what was stated in certain of the monthly reports that a considerable proportion of the cases admitted as typhoid to the City Hospital during the later half of last year and the earlier half of the present year, did not yield the well-known Widal blood reaction, though the cases were repeatedly tested. To avoid error through some change in the strain of the typhoid bacillus used in the test, I arranged for control tests being made, in some instances, in certain bacteriological laboratories in the south, but the results were substantially the same. Practically all the cases removed to the City Hospital—and these constituted the bulk of the notified cases—presented more or less distinctly the usual clinical symptoms of typhoid; and in one case which died, and in which a post-mortem examination was allowed, the pathological appearances were typically those of typhoid. Yet this case did not respond to the Widal test. Nor did it and other non-responding cases give a reaction with the para-typhoid bacillus. In the fatal case referred to, Dr. Duncan, of the Pathological Department of the University, kindly undertook a careful bacteriological examination of the ulcerated intestines, with the result that he isolated a bacillus which was indistinguishable from the genuine typhoid bacillus, and thus apparently demonstrated the case to be one of typhoid, although the Widal reaction had never been obtained with the blood of the patient during life. It is difficult, however, to refrain from the belief that many of the cases, though clinically resembling typhoid, were not cases of ordinary typhoid, but were cases of a disease closely allied to it. To judge from the manner in which the cases tended to group themselves, it seems not improbable that the disease was somewhat more contagious than ordinary typhoid. It is highly probable, as pathologists and physicians have long suspected and to some extent, in recent years, demonstrated, that there are several varieties of typhoid.

The diagrammatic comparison between typhoid and diphtheria, first given in my report for 1901 to illustrate the apparent agreement for a time between these two diseases in their prevalence, is again presented in the present report. It shows, however, that during the past two years this agreement is far from being maintained. On the contrary, while diphtheria has been increasing, typhoid has greatly decreased.

Typhus Fever.—There have been no known cases of this disease in Aberdeen for the past four years. There have been only 18 in the whole of the past ten years, as against 208 in the preceding ten years. Typhus has, therefore, practically become extinct in Aberdeen. But it is not unlikely that it would re-appear if the community were to experience a lengthened period of industrial depression accompanied by destitution.

Erysipelas.—The cases of this disease underwent a considerable increase in 1901, rising to 403 from 283 and 282 in the preceding two years respectively. Since 1901 the cases have been steadily declining, having fallen to 326 in 1902, and to 260 in 1903. Erysipelas has, therefore, now receded to what may be called its normal dimensions. The cause of the increase in 1901 has not been discovered, but may have been due to the cyclical fluctuations which characterise nearly all infectious diseases.

Puerperal Fever has, in its varying prevalence, during the past four years followed erysipelas, the number of cases during the four years, 1900 to 1903, being 13, 16, 13, and 10 respectively, as compared with 282, 403, 326, and 260 for erysipelas during the same years. This seems to bear out the association between puerperal fever and erysipelas which is sometimes remarked upon.

Influenza was registered as the primary cause of 14 deaths during the year. This is less than one-half of the number registered during the preceding year, and, excepting in the years 1894 and 1896, is the smallest number registered since the present visitation of influenza began in 1889. This visitation has lasted longer than most of the previous visitations. It is to be hoped that the present abatement presages the early disappearance of the disease. I had occasion, however, to observe several undoubted cases of influenza of a mild type in the Police Force of the city in the earlier months of the current year.

TUBERCULOUS DISEASES.

(Table VIII.)

As already mentioned, there was during last year a slight increase in the deaths from phthisis in the city. This was, however, to some extent balanced by a very slight fall in the deaths from the other forms of tuberculous disease—tabes mesenterica, tubercular meningitis, and the like. At all ages, therefore, the proportion of deaths from tuberculous diseases to deaths from all causes was as 1 to 8, or the same as the average of the preceding five years. At the "infant" age-period, last year, deaths from phthisis had increased, while deaths from other tuberculous diseases had declined. This was also true, though in less degree, of the "school" period. At the "adolescent" age-period the reverse was the case—deaths from phthisis having decreased, and deaths from other tuberculous diseases having increased. At the "mature" period there was a decided increase of the mortality from both groups of tuberculous diseases, while at the "post-mature" period there was a large decrease from both groups. As in preceding years, so also in the past year, phthisis was most prevalent at the ages of adolescence and early manhood, while other tuberculous diseases were by far the most prevalent at the "infant" age-period. As much of the tuberculosis at the "infant" age-period is abdominal, it is attributed by many authorities to the use of milk containing tubercle. Since Koch perplexed the scientific world by his pronouncement, at the International Congress on Tuberculosis in London, in 1901, that bovine tubercle was not identical with human tubercle, and was not communicable to man, a large number of investigators have been working at the problem. Among other investigators who have published their results within the last twelve months have been professor Hamilton and Mr. Young, of Aberdeen University, and the experts of the third Royal Commission on Tuberculosis. Both groups of observers have succeeded in rendering calves and other animals tuberculous which were fed on milk containing human tubercle, and, while still continuing their investigations, are of opinion that they are already justified in asserting that human tubercle is undoubtedly communicable to cattle, and that probably it is also true that bovine tubercle is communicable to man. In this connection, the theory of Dr. Nathan Raw, of Liverpool, is of great interest. Dr. Raw, while not seeking to discredit the results to which I have just referred, is of opinion that the bovine and the human tubercular germs are not absolutely identical, though closely related, and that both may invade the human being, but with different results. He maintains that bovine tubercle, obtainable in the milk of tuberculous cows, is the form of tubercle which chiefly infects children, producing in them abdominal forms of tuberculosis and the so-called scrofulous glands and joints, while human tubercle, obtainable from consumptive persons, is the form of tubercle that chiefly affects adolescents and adults, in whom it produces phthisis of the lungs. There are many facts which lend support to this theory. The theory also serves to explain many hitherto inexplicable points in the manifestations of tubercle. For example, it explains how it seldom happens that children who suffer from scrofulous or tubercular glands become affected by phthisis. This is a theory of which much more is almost certain to be heard in the immediate future.

Sanatorium for Consumptives.—I referred in my last annual report to the prospect there then existed of the erection of a sanatorium for the treatment of consumptive patients of the poorer classes from funds to be supplied in large part by the trustees of certain charitable bequests. I regret to have to report that not only has no progress been made in the direction indicated, but the prospect of such an institution being erected in the vicinity of Aberdeen appears to be more remote than it was last year. There should be no doubt as to the two great advantages which a sanatorium for consumptives confers on a community. In the first place, by providing the best of all modes of treatment for early phthisical cases, it secures the cure of a considerable percentage of cases which would otherwise die. And, in the second place, it is an invaluable agent in spreading throughout the community a knowledge of the proper methods of curing or preventing phthisis. A most laudable effort has been made by Mrs. Smith, of Newhills, in a small wing attached to her Convalescent Home, to make a beginning with sanatorial treatment of phthisical cases, but much more accommodation is required if any distinct impression is to be made in a town of the size of Aberdeen.

TABLE VIII.—DEATHS AT VARIOUS AGE-PERIODS FROM TUBERCULOUS DISEASES IN YEAR 1903, WITH AVERAGE FOR PRECEDING FIVE YEARS.

Compared with Deaths from Miasmatic Diseases and from All Causes.

	Year.	Number of Deaths.					Proportion of Deaths from Tuberculous Diseases to Deaths from All Causes.
		Phthisis.	Other Tuberculous Diseases.	ALL TUBERCULOUS DISEASES.	ALL MIASMATIC DISEASES.	ALL CAUSES.	
ALL AGES, ...	1903	230	114	344	216	2741	1 : 8
	Av. 1898-1902	225	115	340	245	2779	1 : 8
Infant Period, ...	1903	10	60	70	174	980	1 : 14
0—5 Years, . .	Av. 1898-1902	7	68	75	168	1002	1 : 13
School Period, ...	1903	16	18	34	12	103	1 : 3
5—15 Years, . .	Av. 1898 1902	15	19	34	17	108	1 : 3
Adolescent Period, . .	1903	59	17	76	7	157	1 : 2
15—25 Years, . .	Av. 1898-1902	68	14	82	10	161	1 : 2
Mature Period, . . .	1903	137	19	156	5	681	1 : 4
25—60 Years, . .	Av. 1898-1902	122	13	135	24	687	1 : 5
Post-Mature Period, . .	1903	8	0	8	18	820	1 : 102
60 + Years, . .	Av. 1898-1902	12	1	13	26	821	1 : 63

Table IX.—Bacteriological Examinations,

made by Professor Hamilton, University of Aberdeen, under agreement with the Town Council.

Year.	SUSPECTED DISEASES.													
	Typhoid Fever.				Diphtheria.				Tuberculosis.				Other Diseases.	Grand Total.
	Positive.	Negative.	Doubtful.	Total.	Positive.	Negative.	Doubtful.	Total.	Positive.	Negative.	Doubtful.	Total.		
1903	24	105	1	130	180	150	0	330	60	95	0	155	4	619
1902	31	79	1	111	162	131	3	296	67	128	0	195	3	605
1901	139	58	2	199	104	172	7	283	61	81	0	142	9	633
1900	108	48	6	162	74	95	4	173	37	64	0	101	4	440
1899	152	37	6	195	92	127	13	232	32	52	0	84	3	514

BACTERIOLOGICAL EXAMINATIONS.

In Table IX. will be found a summary of the bacteriological examinations made, in the Bacteriological Department of the University, by Professor Hamilton and his special assistant, under the agreement between the Town Council and Professor Hamilton, which continues to work very satisfactorily. It will be observed that considerable use is being made of the facilities offered under this arrangement. On the assumption that material from any case is not sent for bacteriological examination, except upon a distinct suspicion, from the clinical symptoms, of the presence of the disease noted in connection with the material submitted, it is interesting to note, from a perusal of the Table, in what proportion the bacteriological examination confirms or does not confirm the clinical suspicions. The examinations are confined practically to three diseases, viz., typhoid fever, diphtheria, and tuberculosis.

In the case of *typhoid fever*, where the Widal test is made, the proportion of positive results has been rapidly falling while the proportion of negative results has been rapidly rising. For example, in the year 1899, out of every 10 examinations made, 8 were positive and 2 were negative; while, in 1903, out of every 10 examinations, 2 were positive and 8 were negative. This would appear to bear out the remarks already made on the atypical character of recent cases of apparent typhoid in the city, and, further, to suggest that several typhoid-like cases have been occurring recently in the city, but which, because of their failure to respond to the Widal reaction, have not been notified as typhoid. If this be true, then the marked decline in typhoid, as shown in Table VII., has been accompanied by an increase in a disease or diseases clinically resembling typhoid, but not yielding the Widal reaction.

In the case of *diphtheria* an opposite state of matters is to be observed. The proportion of positive results has been increasing while the proportion of negative results has been decreasing. In the year 1899, out of every 10 bacteriological examinations, 4 were positive and 6 were negative; while, in 1903, out of every 10 examinations, 6 were positive and 4 were negative.

In the case of *tuberculosis*, where the examinations are almost entirely confined to the sputum of suspected phthisical patients, the negative results have been constantly in excess of the positive results.

It is satisfactory to observe, from a comparison of the number of notified cases of typhoid fever and diphtheria with the number of bacteriological examinations yielding positive results, that recourse was evidently had to the aid of bacteriological diagnosis in almost every case of these diseases. It is obvious, however, from the small number of examinations for tuberculosis that the help of the bacteriologist is much more rarely sought for in this disease than in the others. This is rather to be regretted, as a more free use of the bacteriological examination of sputum in lung cases of an apparently simple catarrhal character might reveal, at an early stage, the presence of the micro-organisms of tubercle, and lead to a more active grappling with the disease in the stage when the chances of its arrest are much greater than later on. It has, of course, to be kept in mind that many medical men are quite competent to make such a bacteriological examination for themselves, and, no doubt, do make such examinations without invoking the aid of the arrangement provided by the Public Health Department.

In addition to the examinations tabulated, several special bacteriological examinations or investigations were made by Professor Hamilton and his assistants on behalf of the Public Health Department. Among these I desire to refer to a prolonged and careful investigation, kindly undertaken by Dr. Duncan, of a case of apparent typhoid fever which died in the City Hospital with all the clinical signs of typhoid, but without the blood having yielded the Widal reaction though repeatedly tested. This case has already been commented upon earlier in the report.

Disinfection.—The Department is also indebted to Dr. Andrew R. Laing for a careful investigation, which he made at my suggestion, of the efficiency of formaldehyde as a gaseous disinfectant and also as a fluid disinfectant. Experiments were made with Lingner's apparatus and with the Alformant lamp in certain dwelling-rooms in ordinary houses, and in hospital wards. Lingner's apparatus, which is not yet well known in this country, and which is a spray apparatus with four nozzles through which the formaldehyde solution, mixed or unmixed with a little glycerine, is driven in the form of a voluminous fine spray or cloud by pressure from the steam of an attached boiler, gave excellent results, and entirely succeeded in killing within three hours the germs of tubercle, typhoid, sporing anthrax, the bacillus coli communis, and the staphylococcus pyogenes aureus, even when placed beneath two layers of an ordinary blanket. The Alformant lamp gave less satisfactory results, although the proportion of paraform used was considerably in excess of that recommended by the makers of the apparatus. The results from Lingner's apparatus were such as, in our opinion, to enable it to be employed even as a substitute for steam disinfection, especially in such diseases as whooping cough and measles, the germs of which are probably easy of destruction, and possibly also in scarlet fever and diphtheria.

The efficiency of formaldehyde solution as a fluid disinfectant for infected articles steeped in it was also tested, and the conclusion was arrived at that, while the inhibitory or antiseptic power of formaldehyde is very great, its actual disinfectant or germ-killing power, although effective in fairly strong solution, is lower than is generally supposed. For example, a 3 per cent. solution of formalin failed to kill anthrax spores or the staphylococcus pyogenes aureus in an exposure of fifteen minutes, though it just succeeded in destroying the typhoid bacillus. It was found to be a less active disinfectant than carbolic acid in the same strength of solution, and a distinctly less active disinfectant than the creasotic disinfectants, several of which are now in the market under proprietary names. These results are in general agreement with the results of certain recent experiments by other investigators. Dr. Laing intends to publish in the course of the year a complete account of his investigation.

As public officials have, properly, much hesitation in recommending patent or proprietary disinfectants, and as it is now being realised that some of the most effective disinfectants are to be found among creasotic bodies obtainable from coal-tar products, it is much to be desired that such disinfectants could be obtained or recommended without the necessity of being obliged to use registered names, so as to avoid the suspicion of advertising the goods of certain makers. So far as I am aware, there is nothing to prevent most, if not all, such disinfectants being manufactured by any manufacturing chemist and sold under some ordinary chemical name. It is obvious that there is still much room for progress in the public health relations of disinfectants.

COMPARISON WITH OTHER TOWNS.

(Table X.)

A comparison is made in Table X., in respect of the birth, marriage, and death rates, between Aberdeen and seven other large towns in Scotland, during the year. It shows that Aberdeen had the second highest *birth-rate* (31·0 per 1,000), Glasgow being slightly above it. In the preceding year it stood third, with Glasgow and Greenock above it. Edinburgh and Perth had the lowest rates, with 24·7 and 24·4 respectively.

Table X.—Birth, Marriage, and Death Rates during the Year 1903.

Principal Towns in Scotland.

	Glasgow.	Edinburgh.	Dundee.	**Aberdeen.**	Paisley.	Leith	Greenock	Perth.
Estimated population .... (*in thousands*).	787	327	163	**161**	83	80	69	34
Birth Rate .... (*per* 1000 *of population*).	31·9	24·7	29·2	**31·0**	30·0	29·9	29·6	24·4
Marriage Rate........................ (*per* 1000 *of population*).	9·2	9·3	8·4	**9·1**	7·5	7·0	7·8	8·8
Death Rate .... (*per* 1000 *of population*).								
(*a*) From all causes, and at every age	19·2	16·9	18·1	**17·0**	17·2	16·2	19·0	16·7
(*b*) From all causes, and under 5 years of age...........	59·0	43·7	49·0	**49·6**	48·5	47·4	49·9	34·3
(*c*) From zymotics (miasmatic) at every age	1·8	1·3	0·7	**1·3**	1·6	0·9	1·7	0·7
(*d*) From all causes, exclusive of zymotics (miasmatic) at every age..	17·4	15·6	17·4	**15·7**	15·6	15·3	17·3	16·0

In respect of the *marriage-rate*, Aberdeen occupied the third place, with a rate of 9·1 per 1,000, Edinburgh and Glasgow having rates of 9·3 and 9·2 respectively; while Leith had the lowest rate, with 7·0. It is curious to observe that year after year Edinburgh exhibits a conjunction of a high marriage-rate with a low birth-rate. But the high marriage-rate may be partly due to the more frequent celebration in Edinburgh than in other large towns of the marriages of persons from the surrounding districts.

As regards the *death-rate* from all causes and at all ages, Aberdeen had the fourth lowest rate, viz., 17·0 per 1,000. The lowest rates were in Leith (16·2), Perth (16·7), and Edinburgh (16·9). In the preceding year Aberdeen occupied the third place, Leith and Edinburgh having lower rates. Among children under five years of age, the death-rate (49·6) from all causes in Aberdeen was the fifth lowest, Perth (34·3), Edinburgh (43·7), Leith (47·4), and Paisley (48·5) being lower. From miasmatic diseases, at all ages, the death-rate in Aberdeen (1·3) was the fourth lowest, Perth (0·7), Dundee (0·7), and Leith (0·9) being lower; and from all causes, excluding miasmatic cases, the rate in Aberdeen (15·7) was also the fourth lowest, Leith (15·3), Edinburgh (15·6), and Paisley (15·6) being lower.

HOUSING OF THE WORKING CLASSES.

On the report of the Sanitary Inspector and myself, 36 separate dwelling-houses, occupied by the working classes, were closed during the year by order of the Town Council, under Section 72 of the Aberdeen Corporation Act, 1881, on account of their being unfit for human habitation. They were nearly all houses of one or two rooms, and the chief causes of their unfitness for habitation were dampness, defective lighting and ventilation. The majority were incapable of being rendered fit for occupation by any repairs short of almost complete reconstruction; and a few were so closely situated to other dwelling-houses that it is desirable that they should be altogether demolished. In some instances such demolition has already been carried out by the owners to the great advantage of the healthiness of the adjacent houses. In other instances demolition may have to be enforced under the Aberdeen Police and Improvement Act of 1900.

In addition to these houses compulsorily closed, a few dilapidated houses in the older parts of the city were demolished by the owners, and are being replaced by new houses.

The Town Council is also in course of obtaining Parliamentary sanction for a large improvement scheme, under which a considerable area of old properties between the Gallowgate and Seamount Place, in the centre of the city, will be demolished, and the area made available for the erection of modern working-class dwellings. When this area has been dealt with, the Town Council will in this and the Exchequer Row area, which has been cleared for some years, have removed the most congested and unhealthy areas in the city. But there still remain some smaller areas which, though less urgent, should also be dealt with in course of time.

No houses for the working classes were erected by the Town Council during the year; but a large number of such houses were built by private owners. There is, consequently, at present an ample supply of houses for the working classes.

It is to be regretted that the type of working-class dwelling-house still continues to be a three or four-storey tenement, with six or eight houses opening into a common passage and staircase, though I believe the type followed in Aberdeen to be very good of its kind. It would be a great boon in several ways to many working-class families if small detached or semi-detached cottages, each with a garden, could be provided for them at a suitable rent. There are few, if any, large towns in Scotland which are more amply provided than Aberdeen with such self-contained cottages or villas for the middle classes. High-priced flats for such classes are almost unknown in Aberdeen. There appears to be slight prospect of small cottages for working-class families being erected in any considerable number without the intervention of the Municipality. The chief and initial difficulty is the securing of sufficiently cheap land in the vicinity of a town, and this, under present circumstances, seems only to be obtainable through the Municipality or a company acquiring a large tract of ground at a reasonable price and feuing it out at a small profit. The rapid extension of the tramways of the city and suburbs and their electrification, with consequent rapid and cheap transit, ought to render the problem of cottage housing for the working classes easier of solution than it formerly was. The problem is admittedly a difficult one, but its solution would add greatly to the health and happiness of the working classes.

I have again to report that the Fishers' Squares are still without adequate sink and water-closet accommodation. These Squares contain a population of about 700, and it is highly desirable that the present insanitary state of matters should be remedied.

The Corporation Lodging-House, which was erected about six years ago, is beginning to be less of a financial burden to the Town Council than it was at the beginning. It is now almost continuously well filled, and its comforts as compared with those of the old privately owned lodging-houses, which it supplanted, are now being realised and appreciated. For both police and sanitary reasons, the Corporation Lodging-House is of great advantage to the city. The income last year (1902-03) was sufficient to meet all expenditure and interest on loans, and the finances are still steadily improving.

WORKSHOPS.

The number of workshops registered at the end of the year was 1,190, and all are under regular inspection by the sanitary staff. The Sanitary Inspector has been active in dealing with all sanitary defects and complaints, and I am satisfied, from frequent consultations with him and from visits to the workshops, that the standard of requirements is as high as can be reasonably insisted upon at present. Much attention is being given to cleanliness, and to ventilation and lighting, and the recent requirement of the Home Office as to sufficient and proper water-closet accommodation has practically everywhere been carried out. But this has not been accomplished without much additional labour to the staff, and without considerable expense and architectural difficulty to the owners or occupiers of the workshops. The result, however, is entirely satisfactory. Fuller details of the inspection of workshops will be found in the annual report of the Sanitary Inspector.

Bake-Houses.—The bake-houses were inspected every quarter during the year, and were found, on the whole, to be in a satisfactory condition. A large number of structural improvements of a sanitary nature have been carried out in the bake-houses of the city, at the instance of the Department, during recent years, and the plans of every new bake-house have been carefully scrutinised and reported on by the Sanitary Inspector and myself before sanction was granted by the Town Council for its erection.

The requirements of Section 101 of the Factory and Workshops Act of 1901, as to the certification of underground bake-houses from the commencement of the current year, received much consideration from the Public Health Committee and from the Sanitary Inspector and myself during the past year. After a thorough personal inspection of every underground bake-house, a report was prepared by us for the Town Council, in which we suggested a series of structural requirements to be insisted upon by the Council in every case as a condition to its giving the necessary certificate of fitness for use as a bake-house. These requirements, which were adopted by the Town Council, are as follows:—

(1) Where all the baking-rooms, or any baking-room, are underground, or, in any case, where the underground baking-room is more or less continuously occupied during the working day of the bake-house, the height of the ceiling to be not less than 8 feet clear.

(2) Where the underground baking-rooms are used for pastry only, and are not occupied for more than one-half of the ordinary working day, the height of the ceiling to be not less than 7 feet clear.

(3) Every part of the underground baking-room to be adequately lighted during the day without the aid of artificial light.

(4) The floor of every underground baking-room to be constructed of smooth, hard, impervious material.

(5) The roof to have a plaster ceiling, so as to prevent dust falling through from the shop or other rooms above.

(6) The walls to be smoothly plastered, and have a hard surface.

(7) Where areas in the pavement or street exist opposite the windows of underground baking-rooms, such areas to be lined with white glazed brick, and the outmost wall of the area to slope from the top of the area to the sill of the window, to assist in the reflection of the light. The opening of the area at the pavement to be closed by an iron frame wholly glazed with prismatic glass, and containing no openings, and such frame to fit tightly all round so as to prevent dust falling into the area below.

(8) Every underground baking-room to be adequately ventilated, to the satisfaction of the Medical Officer of Health and Sanitary Inspector.

(9) No ventilating opening at or above the adjacent pavement or street to have its lower margin, when open, less than four inches above the level of such pavement or street.

Intimation of these requirements was sent to the owner and occupier of each underground bake-house several months before the close of the year, so as to afford them ample time to carry out the requirements before the beginning of the current year. Altogether 15 bake-houses, out of a total of 64 within the city, were found to fall within the definition of an underground bake-house as laid down in the Act. In 5 of these, every baking-room was more or less underground, and in the remaining 10 there were only one or two small baking-rooms, usually pastry-rooms, underground, while the principal baking-rooms were above-ground. In the case of the latter, it usually happens that the underground room is in use for only a short time daily, and, accordingly, we felt justified in such case in recommending to the Town Council that the requirement in respect of height of ceiling should be 7 feet, in place of the 8 feet recommended for baking-rooms in use throughout the whole working day. Through misunderstanding as to the requirements and from other causes, it was found that in some instances the requirements were not fully complied with before the end of the year, but, where a reasonable explanation was offered, an extension of time was granted. The result now is that the 5 underground bake-houses, in which the whole of the rooms were underground, have all complied with the requirements, and are certified by the Town Council, and that of the 10 underground bake-houses, with their principal rooms above-ground, 5 have complied with the requirements and are certified. The occupiers of the remaining 5 bake-houses have intimated that they have discontinued the use of their underground rooms. It is gratifying to add that, although in some instances the necessary alterations entailed considerable expense, every occupant has frankly admitted the great benefit in air-space and ventilation and especially in lighting. Without an increase of window superficies, the lighting in some cases appears to have been almost doubled by lining the sunk area at the windows with white glazed bricks, and by the insertion of prism glass in the pavement frames covering the areas.

Inspection of Plans.—As usual, a considerable number of plans of workshops or premises, in which food stuffs are prepared, were examined and reported on by the Sanitary Inspector and myself, under arrangement with the Burgh Surveyor, to whose department the inspection of plans in general falls. Thus, 25 plans for the erection, extension, or alteration of fish-curing premises were reported upon, as against 27 in the preceding year; as also 5 plans of provision-curing works, 2 of bake-houses, and 5 of dairies and cowsheds. Various recommendations were made, which were adopted by the Town Council. We believe that the standard which is being exacted for such places to be high, but not higher than the circumstances require. Our chief difficulty in the case of the numerous fish-curing yards which exist in the city, and which have multiplied greatly within recent years, is in suggesting any adequate means for lessening the amount of smoke from the fish kilns. The smoke from such kilns probably does not fall within the scope of the Smoke Abatement Acts or the principal smoke clauses of the Public Health Act, and, even if it did, one naturally hesitates to impose restrictions which might seriously cripple one of the leading industries in the city. It is, nevertheless, regrettable that the great increase of such kilns has done much to deteriorate the atmosphere, especially in the southern districts of the city.

OFFENSIVE TRADES.

The offensive trades in Aberdeen, within the meaning of the Public Health Act, are concerned chiefly with tallow melting or oil extracting (from ox bones or fish livers), soap boiling, slaughtering, hide factoring, and manufacturing of manures. Very few complaints were received regarding any of these trades during the year, and none was of a serious character. Some complaints were made regarding certain trades which are not among those defined as such in the Public Health Act. Complaints, for example, were made regarding the smoke from certain fish kilns, and steps were taken to help to obviate the complaint. In another case the effluvia from a fish-boiling process in a curing yard was strongly complained of by the neighbouring residents, and the process has now, at the request of the Department, been discontinued. Complaints have also again been received regarding the effluvia from the drying of dreg at a distillery in the city, and considerable trouble has been experienced in making the owners realise that an odour which, though not of an inherently noxious or poisonous nature, may, nevertheless, by the mere discomfort and annoyance which it causes to persons living in the vicinity, be more or less prejudicial to health. It is proper, however, to state that the owners have recently been at considerable expense in devising arrangements to diminish or destroy the effluvia, though not as yet with perfectly satisfactory results.

Only one application, during the year, was made to the Town Council for permission to establish a business under the offensive trade sections of the Public Health Act. It was for tripe-boiling in premises in Palmerston Road, and really represented the transference of an existing business to a fresh site. As the proposed site was not in the immediate vicinity of dwelling-houses, and as the plans of the premises were suitable, sanction was granted, subject, among other conditions, to provision being made for collecting the fumes and vapour from the boilers, and carrying them into the adjacent chimney stalk.

Slaughter-Houses.—The slaughter-houses are subject practically to daily inspection, and are being kept in fair order, but the majority of them are structurally of an antiquated type, and distinctly defective in modern requirements. The new bye-laws for slaughter-houses which have recently been under the consideration of the Local Government Board, will, when they come into operation, necessitate extensive alterations in many of the slaughter-houses. It is to be hoped that these demands may give fresh occasion to all concerned for considering the propriety of erecting a public slaughter-house. Full reference was made in my last annual report to the action of the Town Council in this direction. The business of the slaughtering of cattle is a very extensive one in this city, being four to five times greater than is required for the supply of the city alone, and it would greatly conduce to the proper regulation and, I believe, to the success of the trade, if the whole slaughtering could be brought within a properly constructed public slaughter-house, equipped with all modern conveniences and appliances.

WATER SUPPLY.

I have occasionally directed attention in my annual reports to the need of a more satisfactory source for the water supply of the city. I am, therefore, glad to be able to state that the various schemes for an improved supply have been under the consideration of the Town Council for some time. No doubt the principal object of the Council is to secure a more abundant supply, but I trust that the equally important, if not more important, question of a purer supply will not be lost sight of. The present supply is taken from the River Dee at a point below at least three towns or villages on the banks of the river, and although means are taken by irrigation farms to purify the sewage of these towns before it enters the river, absolute reliance cannot be placed on any practicable method of purification if the complete elimination or destruction of dangerous germ impurity is to be attained. The sewage from inhabited places cannot fail to be charged from time to time with the germs of human disease, which may be communicated to others by drinking the water which the sewage effluent may have contaminated. The danger is the greater in Aberdeen, inasmuch as the water does not undergo filtration, or, at any rate, no sufficient filtration. Luckily, no distinct outbreak of disease has so far been directly traceable to any pollution of the water-supply, but one can well imagine how the population of the city might be literally decimated by a case or two of true cholera finding their way to the villages on the upper reaches of the Dee, or to some of the numerous isolated dwelling-houses along the valley. The huge epidemic of cholera in Hamburg a few years ago had precisely such an origin. The water supply of the city, if it is to continue to come from the Dee, should be taken from a point above all obvious opportunity of sewage pollution, or the supply should be taken from an altogether fresh and uncontaminated source such as the River Avon, which, it is believed, several members of the Council are inclined to favour.

CITY HOSPITAL.

ANNUAL SUMMARY, 1903.

ZYMOTIC ADMISSIONS AND DEATHS DURING EACH YEAR FROM 1893 TO 1903 INCLUSIVE.

DISEASE.		1903	1902	1901	1900	1899	1898	1897	1896	1895	1894	1893	1893-1902.	
													Total	Annual Average
Small Pox,	Admitted, ...	0	0	7	0	2	0	0	0	1	4	3	17	1·7
	Died, ...	0	0	1	0	0	0	0	0	0	1	1	3	0·3
	Percent. of Deaths to Admissions, ...	0	*0*	*14·7*	*0*	*0*	*0*	*0*	*0*	*0*	*25·0*	*33·3*	...	17·6
Measles, ...	Admitted, ...	78	156	133	342	191	194	129	266	40	125	104	1680	168·0
	Died, ...	9	3	4	9	4	7	0	4	0	1	3	35	3·5
	Percent. of Deaths to Admissions, ...	11·5	*1·9*	*3·0*	*2·6*	*2·1*	*3·6*	*0*	*1·5*	*0*	*0·8*	*2·9*	...	2·1
Scarlet Fever, ...	Admitted, ...	408	278	340	280	343	920	842	1181	456	334	254	5228	522·8
	Died, ...	9	8	5	7	16	28	16	29	17	15	6	147	14·7
	Percent. of Deaths to Admissions, ...	2·2	*2·9*	*1·5*	*2·5*	*4·7*	*3·0*	*1·9*	*2·5*	*3·7*	*4·5*	*2·4*	...	2·8
Diphtheria,	Admitted,	120	107	101	82	78	79	26	35	20	24	21	573	57·3
	Died, ...	8	8	5	6	8	4	2	2	2	3	2	42	4·2
	Percent. of Deaths to Admissions, ...	6·7	*7·5*	*4·9*	*7·3*	*10·3*	*5·0*	*7·7*	*5·7*	*10·0*	*12·5*	*9·5*	...	7·3
†Typhoid Fever, ...	Admitted, ...	22	28	70	26	35	18	0	0	8	4	2	191	19·1
	Died, ...	0	1	1	2	6	2	0	0	1	1	0	14	1·4
	Percent. of Deaths to Admissions, ...	0	*3·6*	*1·4*	*7·7*	*17·1*	*11·0*	*0*	*0*	*12·5*	*25·0*	*0*	...	7·3
Typhus Fever, ...	Admitted, ..	0	0	0	0	5	5	0	0	0	1	7	18	1·8
	Died, ...	0	0	0	0	0	2	0	0	0	0	1	3	0·3
	Percent. of Deaths to Admissions, ..	0	*0*	*0*	*0*	*0*	*40·0*	*0*	*0*	*0*	*0*	*14·3*	...	16·7
Other Zymotics,	Admitted, ...	17	32	18	14	10	12	4	1	2	3	13	109	10·9
	Died, ...	2	3	1	2	1	1	0	0	0	1	0	9	0·9
	Percent. of Deaths to Admissions, ...	11·8	*9·4*	*5·6*	*14·3*	*10·0*	*8·3*	*0*	*0*	*0*	*33·3*	*0*	...	8·3
Total Zymotics,	Admitted, ...	645	601	669	744	664	1228	1001	1483	527	495	404	7816	781·6
	Died, ...	28	23	17	26	35	44	18	35	20	22	13	253	25·3
	Percent. of Deaths to Admissions, ..	4·3	*3·8*	*2·5*	*3·5*	*5·3*	*3·6*	*1·8*	*2·4*	*3·8*	*4·4*	*3·2*	...	3·2
Quarantine,	Admitted, ...	14	6	43	18	22	34	16	23	15	31	75	283	28·3
	Died, ...	3	0	0	0	0	0	1	1	2	0	0	4	0·4
	Percent. of Deaths to Admissions, ...	21·4	*0*	*0*	*0*	*0*	*0*	*6·2*	*4·3*	*13·3*	*0*	*0*	...	1·4

† Cases of Typhoid Fever are not, as a rule, admitted, being sent to the Royal Infirmary and Sick Children's Hospital.

SEWERAGE.

The extensive scheme for the re-modelling of the sewerage of the city, by carrying the sewage beneath the River Dee and through the hill behind Torry to the Bay of Nigg and Girdleness was vigorously prosecuted during the year, and is now nearing completion. By this scheme the great bulk of the sewage of the city will be discharged into the North Sea at a point which will prevent any sensible pollution of the foreshore opposite the city, and diminish very greatly the present pollution of the estuary of the Dee. The complete scheme is estimated to cost £187,000. When this scheme is completed, Aberdeen should take rank as one of the best-drained towns in the Kingdom; and although it may be open to the accusation of allowing the manurial value of the sewage to go to waste, all experience hitherto of sewage purification and utilisation has shown that the expenditure is usually far in excess of the receipts.

DRINKING OF METHYLATED SPIRITS.

I am glad to be able to report that the practice of drinking methylated spirits to which I directed attention in my last annual report is now believed to be greatly circumscribed, if not altogether extinguished. Both the Police and Inland Revenue Authorities have been very active in dealing with the matter. It was felt that the practice could probably be best checked by prosecuting one of the principal vendors of methylated spirits for drinking purposes, but difficulty was experienced for a time in obtaining the requisite evidence of the vendor being aware that the methylated spirits were to be so used. At length such evidence was available, and the vendor was prosecuted at the instance of the Inland Revenue Commissioners before the Justice of Peace Court, the charge being that he had, on two specified occasions, sold methylated spirits as a beverage. The full penalty for such an offence is £100. The charge was held to have been proved, and the vendor was fined in the modified penalty of £10, with the alternative of a month's imprisonment. Since this conviction was obtained, I am informed by the police that the practice of drinking methylated spirits has almost completely ceased in the city.

CITY HOSPITAL.

No additions were made to the Hospital during the year. The number of patients dealt with has for some years been small, and the accommodation has proved to be ample. There is as yet no independent hospital for small-pox, but no difficulty is being experienced in nursing the few cases which we occasionally have in the special pavilion within the grounds of the City Hospital. To prevent patients suffering from other diseases being infected aerially by small-pox, I now make it a practice, when small-pox cases are in the Hospital, to offer re-vaccination to all adult convalescents among such patients. I also take care that any unvaccinated child is at once vaccinated, subject, of course, to the consent of the parents, which has always been readily granted.

The chief defect in the Hospital is the absence of a Reception House for contacts or suspects. Empty wards are used for this purpose at present, and have proved fairly suitable when the Hospital has been, as for a considerable time, only partially occupied by patients.

The accompanying table gives a summary of all the cases admitted to the City Hospital during the year, together with a corresponding summary for each of the preceding ten years.

MATTHEW HAY, M.D.,
Medical Officer of Health.

ABERDEEN, 29*th July*, 1904.

30 APR 65